

We claim:

1. A method comprising:

- providing an interposer having at least one semiconductor die attached to a first side thereof;

5 - prior to placing the interposer on a printed wiring board, disposing an underfill material on at least a portion of a second side thereof.

2. The method of claim 1 wherein providing an interposer includes providing an interposer having at least one interface electrode disposed on the second side thereof.

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3. The method of claim 2 wherein providing an interposer having at least one interface electrode disposed on the second side thereof includes providing an interposer having at least one interface electrode comprising one of a solder bump and a solder ball disposed on the second side thereof.

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4. The method of claim 1 and further comprising adding at least one interface electrode to the second side of the interposer.

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5. The method of claim 4 wherein adding at least one interface electrode to the second side of the interposer includes adding at least one interface electrode to the second side of the interposer after disposing the underfill material.

6. The method of claim 5 wherein disposing an underfill material includes disposing

an underfill material on at least a portion of the second side thereof while simultaneously providing at least one aperture in the underfill material.

7. The method of claim 6 wherein adding at least one interface electrode to the second
5 side of the interposer after disposing the underfill material includes adding at least one interface electrode in the at least one aperture.

8. The method of claim 5 and further comprising forming at least one aperture in the underfill material and wherein adding at least one interface electrode includes adding
10 at least one interface electrode in the at least one aperture.

9. The method of claim 1 wherein disposing an underfill material includes disposing a plurality of material layers.

15 10. The method of claim 9 wherein disposing a plurality of material layers includes exposing at least one of the material layers to low-temperature processing.

11. The method of claim 10 wherein exposing at least one of the material layers to low-temperature drying includes exposing each of the material layers to low-
20 temperature drying.

12. The method of claim 1 and further comprising removing at least a portion of the underfill material to expose at least a portion of at least one interface electrode.

13. The method of claim 12 wherein removing at least a portion of the underfill material includes using at least one of chemical mechanical polishing, abrading, grinding, mechanical polishing, and laser ablation to expose at least a portion of at least one interface electrode.

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14. The method of claim 1 wherein providing an interposer having at least one semiconductor die attached to one side thereof includes providing a plurality of interposers disposed substantially co-planar to one another, wherein at least some of the interposers each have at least one semiconductor die attached to one side thereof.

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15. The method of claim 14 wherein providing a plurality of interposers includes providing a plurality of singulated interposers.

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16. The method of claim 14 wherein providing a plurality of interposers includes providing a panel comprised of a plurality of interposers.

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17. The method of claim 14 wherein disposing an underfill material on at least a portion of the second side of the interposer includes disposing an underfill material on at least a portion of the second side of at least some of the plurality of interposers.

18. The method of claim 17 and further comprising, after disposing the underfill material, singulating the interposers to provide singulated interposers.

19. The method of claim 18 and further comprising placing at least some of the

singulated interposers into a carrier to facilitate subsequent placement of the singulated interposers on a printed wiring board.

20. The method of claim 19 wherein placing at least some of the singulated
5 interposers into a carrier includes placing at least some of the singulated interposers into at least one of a tape and reel carrier, a waffle pack, and a matrix tray.

21. A method comprising:

- providing a printed wiring board;
- 10 - providing at least one interposer having:
 - a first side having at least one semiconductor die affixed thereto;
 - a second side having:
 - an underfilling material disposed thereon; and
 - at least one interface electrode at least partially exposed through the underfilling
- 15 material; and
- disposing the at least one interposer on the printed wiring board.

22. The method of claim 21 wherein the at least one interface electrode comprises one of a solder ball and a solder bump.

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23. The method of claim 21 and further comprising further processing the at least one interposer on the printed wiring board to at least partially harden the underfilling material.

24. The method of claim 23 wherein further processing includes heating the underfilling material.

5 25. A device comprising:

a pre-placement interposer having:

- a first side having at least one semiconductor die affixed thereto; and
- a second side having:
- an underfilling material disposed thereon; and

10 - at least one interface electrode at least partially exposed through the underfilling material.

26. The device of claim 25 wherein the interposer comprises means for physically and electrically coupling a semiconductor die to a printed wiring board.

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27. The device of claim 25 wherein the underfilling material comprises adherence means for physically coupling the interposer to a printed wiring board.

28. The device of claim 25 wherein the second side has a plurality of interface

20 electrodes at least partially exposed through the underfilling material.